ounces in five years. Van Helmont's work was most probably the inspiration of that of Boyle, and Lavoisier is well known to have been an attentive student of the works of the latter. Thus must we trace the evolution of the 'Father of Chemistry!'

J. L. H.

SCIENTIFIC NOTES AND NEWS.

VERTEBRATES FROM THE KANSAS PERMIAN.

VERY recently I have received from Cowley County, Kansas, a number of fossil bones obtained in an excavation for a well, which are of considerable stratigraphic interest. They are from near the base of the Permian, as defined by Professor Prosser, who is our authority on the stratigraphy of the Kansas Permian. Two of the animals represented by the remains are indistinguishable, so far as the descriptions show, from *Cricotus heteroclitus* and *Clepsydrops collettii*, described by Cope from the Permian of Illinois; with them, also, are numerous teeth, similar to or identical with an Illinois species of *Didymodus*.

That species of vertebrate animals are good 'Leitfossilien,' there can be no question, thus proving the contemporaneity of the Illinois and Kansas deposits. Furthermore, all of these genera are represented by closely allied forms from the Permian beds in Texas, which would therefore seem to be of earlier rather than later Permian time. Above the strata which yield these remains in Kansas there are two or three hundred feet of shales and limestones underlying, whether conformably or not is not known, not far from one thousand feet of deposits known as the 'red beds.' That these red beds are not contemporaneous with the Texas Permian would seem assured, and I feel yet more confident that they are, what they were first considered to be, of Triassic age.

S. W. WILLISTON.

A NEW BOTANICAL LABORATORY IN THE AMERICAN TROPICS.

A MOVEMENT for the establishment of a botanical laboratory in the American tropics which should be international in its organization and benefits had made such progress in the way of securing substantial support that the writer at the suggestion of the editors of the *Botanical Gazette*, on January 1, 1897, began to organize a commission for the selection of a location for the proposed laboratory, and to ascertain how far the moral support and active cooperation of American and British botanists might be enlisted.

The organization of the commission has proceeded with such facility that the American membership is now complete, with the following representation:

Professor Douglas Campbell, Stanford University.
Professor J. M. Coulter, University of Chicago.
Professor W. G. Farlow, Harvard University.
Professor D. T. MacDougal, University of Minnesota.

It is proper to say that the entire movement has received the support of almost every active botanical center engaged in work which would be benefited by the opportunities afforded by a tropical station—a unanimity that points to a speedy establishment of the proposed laboratory.

Preliminary to the beginning of actual field work, advices have been secured concerning the regions which should receive the attention of the commission, from botanists in Germany, England and America, inclusive of the gentlemen in charge of the various tropical and subtropical stations now in existence. The suggestions made include the Pacific Coast from California to Peru, the Gulf Coast from Galveston to Panama and from Florida to Venezuela.

Data concerning the climatic conditions, flora and transportation facilities are being accumulated, and the commission will be able to select the region best adapted for the purposes of the laboratory before starting on its tour of inspection. The work of the commission in the field will consist in the selection of a site offering the most highly advantageous grouping of local conditions. The presence of a body of undisturbed tropical vegetation, easily accessible from a site, conveniently placed with reference to towns or settlements, or other base of supplies, as well as direct and easy connection with a marine sub-station, will be the more essential features.

The commission will be present at the meetings of the A. A. A. S. at Detroit and the British Association at Toronto in August, and will make an informational report to these bodies if desired.

D. T. MacDougal.

AN ALLOY COMPOSED OF TWO THIRDS ALUMINUM AND ONE THIRD ZINC.

Prof. W. F. Durand, of Sibley College, Cornell University, supplied the following facts:

From a series of tests made in the Mechanical Laboratory of Sibley College, on the strength of alloys of aluminum and zinc in varying proportions, the best results were found for mixtures of not far from the above proportion. The principal properties of the metal were found to be as follows:

Tensile strength deduced from small bars	22,000
Maxium fiber stress deduced from transverse tests	44,000
Modulus of elasticity	8,000,000
Specific Gravity	3.3

Apart from of the above, comparative experiments have been made more recently between small bars of this metal and like bars of cast iron, showing the same general indications, and apparently warranting the conclusion that this alloy is the equal of good cast iron in strength, and its superior in location of elastic limit. The other general physical properties of chief interest are as follows:

The color is white and it takes a fine smooth finish and does not readily oxidize. It melts at a dull red heat or slightly below, probably about 800–900 F. It can, therefore, be readily melted in an iron ladle over an ordinary blacksmith's forge or other open fire. It is very fluid and runs freely to the extremities of the mould, filling perfectly small or thin parts. In this particular it is much superior to brass. It does not burn the sand into the casting and hence comes out clean and in good condition to work. It is rather softer and more easily worked than ordinary brass, and yet is not as liable to clog a file. It is brittle like cast iron and hence is not suited to pieces which require the toughness possessed by brass. For equal volumes and with aluminum at 50 cts. per pound, it is about equal in expense to brass bought at 15 cts. per pound.

This alloy would seem to be admirably adapted to many small parts of machines, models, etc., where it is desired to obtain castings without waiting for a regular foundry heat, and where lightness combined with good finish, strength, stiffness and non-corrosiveness, are among the desiderata. It has been employed with great success in the construction of small screw propellers for experimental work in the Graduate School of Marine Engineering.

GENERAL.

The author of 'The Argentaurum Papers' has brought suit against this Journal for $50,000, estimating that his reputation 'as a scientist, philosopher, chemist and mathematician' has been damaged to that extent by the review of his book in our issue of February 19th (p. 314). Should the 'case' prove one for the legal profession, the Supreme Court of the State of New York may need to pass on the validity of the law of gravitation.

The American Society of Naturalists, the American Physiological Society, the American Morphological Society and the American Psychological Association will meet at Cornell University, Ithaca, N. Y., on December 28, 29 and 30, 1897.

At the annual meeting of the New York Zoological Society, in January, the Board of Managers was strengthened by representatives from the American Museum of Natural History and from the New York Botanical Garden. The resignation of the Honorable Andrew H. Green, who has been President of the Society since its inception, was accepted, and the selection of his successor was left to the Executive Committee. This Committee was reorganized for the year by the election of Henry F. Osborn as Chairman and Madison Grant as Secretary. At the last meeting of the Committee the Hon. Levi P. Morton, of New York, was elected President of the Society. The other officers of the Society are: Corresponding Secretary, George Bird Grinnell; Treasurer, L. V. Randolph. The agreement with the City has been in the hands of the Park Board for nearly six weeks, and has undergone considerable modification, mainly in the direction of giving

the Society greater autonomy in the administration of the proposed Zoological Park. The Commissioner and other members of the Sinking Fund Commission, as well as members of the Park Board, have all declared themselves individually in favor of the proposals of the Society, and it is expected that a satisfactory settlement will be reached in the course of a short time.

OFFICERS of the New York Academy of Sciences for 1897–1898, in most cases the same as for the past year, have been elected, as follows: President, John J. Stevenson, professor of geology, New York University; First Vice-President, Henry F. Osborn, professor of zoology, Columbia University; Second Vice-President, Nathaniel L. Britton, director New York Botanical Garden; Corresponding Secretary, William Hallock, department of physics, Columbia University; Recording Secretary, James F. Kemp, professor of geology, Columbia University; Treasurer, Charles F. Cox; Librarian, Arthur Hollick, department of geology, Columbia University.

PROFESSOR C. S. SHERRINGTON will deliver the Croonian lecture before the Royal Society on April 1st, having selected as his subject, The Spinal Cord and Reflex Actions.

SURGEON H. D. GIDDINGS, United States Navy, the American scientific delegate to the conference on the plague, has arrived at Venice.

PROFESSOR EBERMANN has been elected President of the St. Petersburg Medical Society.

Nature quotes from the *Rendiconti del Reale Istituto Lombardo* the award of the following prizes: One of the five Cagnola prizes of 2,500 lire and a gold medal of the value of 500 lire to Dr. Andrea Giulio Rossi, of Padua, for his essay on methods of registering the phases of two alternating currents. The Brambilla prize of 1,500 lire and a gold medal are awarded to Prof. Carlo Figini, for his improvements in the weaving industry; and rewards of 500 lire each to Signor Sala Salvatore and Signor Scartazzi Antonio. The Fossati prize of 2,000 lire is awarded to Prof. Angelo Mosso, of Turin, for his essay on the temperature of the brain. For the coming year the Istituto offers the prize of the institution of 1,200 lire, for experiments confirming Maxwell's theory of dielectric stresses; six Cagnola prizes of 2,500 lire, each accompanied by a gold medal of 500 lire, for essays on various selected subjects, mostly medical; one Brambilla prize, for improvements in some industry in Lombardy, and one Secco-Comneno prize of 864 lire, for an essay on uræmia. These prizes are open to foreigners, but the essays must be in Italian, French or Latin.

A NEW laboratory for hygiene has been erected and recently opened at the University of Freiburg. It is under the directorship of Professor M. Schottelius.

THE Royal Meteorological Society, London, will hold from March 16th to 19th, in commemoration of the Diamond Jubilee of the Queen, an exhibition of the meteorological instruments in use in 1837 and in 1897, together with diagrams, drawings and photographs illustrating these.

LORD PLAYFAIR has written to the London *Times* suggesting that in addition to the various philanthropic and local plans proposed for the celebration of the Queen's jubilee the event be celebrated by a permanent national memorial out of public funds. He calls attention to the fact that in 1837, the first year of Queen Victoria's reign, a vote was taken and a museum and school of design were opened at Somerset House. This initial effort to promote technical education has developed into the magnificent art collections and art instruction of South Kensington. For the purpose of technical instruction in art these collections are superior to any in Europe. Berlin and Vienna have avowedly founded new museums on the English type, while Paris has rearranged her museums to some extent in a like way. The museum at South Kensington was opened in 1857, but while the collections have continually grown the building has never been completed. Lord Playfair proposes that Parliament complete the building and that the name be changed from the South Kensington Museum to the Victorian Museum.

LORD SALISBURY, the English Premier, received, at the Foreign Office, on February 16th, a deputation of representatives of science, who asked the government to establish a national

physical laboratory, at a cost of £30,000 for buildings, and £5,000 a year for maintenance. The deputation was introduced by Lord Lister, and addresses were made, urging the importance of such a laboratory, by Professor Rucker, Lord Rayleigh, Sir Douglas Galton, Mr. J. Wolfe-Barry and Sir Andrew Noble. Lord Salisbury, in reply, said that all must be heartily anxious for the attainment of the objects advocated, so far as they were practicable. He feared, however, that the demands might in the end greatly exceed those proposed by the committee. He thought it would be better to begin by determining standards which had already been acknowledged as a function of the state, and leave research to private munificence.

We have, on several occasions, called attention to the work of the Forestry Commission under the auspices of the National Academy of Sciences. This Commission has now selected thirteen new forest reserves, including altogether an area of more than 21,000,000 acres, and these have been set aside by President Cleveland as National forest preserves. Some years ago Congress authorized the Executive to withdraw from public sale parts of the forested public lands, and during Mr. Harrison's administration about 18,000,000 acres were thus set apart. The new reserves include the central portion of the Black Hills of South Dakota, the Big Horn Mountain Range in Wyoming, the Jackson Lake country south of the Yellowstone National Park in Wyoming, the Rocky Mountains of northern Montana, a forest region in northern Idaho, the principal part of the Bitter Root Mountain region in Montana and Idaho, the Cascade Mountains of northern and of southern Washington, the Olympic Mountain region in northwestern Washington, the Sierra summits of California north of the Yosemite National Park, the San Jacinto Mountains in southern California, and the Uintah Mountains in northern Utah.

The February number of the *Bulletin of the American Mathematical Society* gives a brief account of a Mathematical Conference held in the University of Chicago, December 31, 1896, and January 1, 1897, in response to a call issued by several members of the American Mathematical Society. Fourteen papers were read and a resolution was adopted to the effect that, in the opinion of the conference, it was desirable for the members of the American Mathematical Society to hold in Chicago at least two meetings a year for the reading and discussion of mathematical papers, one during Christmas vacation and one in the spring.

The proceedings of the American Association for the Advancement of Science for the forty-fifth meeting at Buffalo last August have been published by the permanent secretary. The volume appears at an earlier date than usual, probably owing to the omission of abstracts of the papers read before the sections. We have already published the addresses of the president and the vice-presidents and full accounts of the meeting. We may, however, quote the following facts from the report of the permanent secretary. The 333 members and associates in attendance were from the following States: New York, 92; Ohio, 31; Massachusetts, 29; District of Columbia, 23; Pennsylvania, 22; Indiana, 13; Iowa, 12; Michigan, 11, and less than 10 from each of twenty-seven States and foreign countries. The 270 papers presented before the sections were distributed as follows: mathematics and astronomy, 12; Physics, 32; chemistry 53; mechanical science and engineering, 18; geology and geography, 42; zoology, 22; Botany, 44; anthropology, 33; social and economic science, 13. Several important changes in the constitution have been proposed, which should be carefully considered by members before the next meeting.

The American Association for the Advancement of Physical Education has issued the first number of a new quarterly publication, entitled the *American Physical Education Review*, edited by the Committee on Publication, consisting of Dr. E. M. Hartwell, Dr. George W. Fitz and Mr. Ray Greene Hieling. The present number, which is a double one, extending to 128 pages, contains an article on Peter Henry Ling, the Swedish Gymnasiarch, by Dr. Hartwell, followed by articles on The Olympic Games, The Present Status of Physical Training, Physical Education in Brunswick, Military Drill in the Public Schools, Manual

Training, The Influence of Exercise on Growth, The Brooklyn Public Bath, and a report of a committee of the Boston Physical Education Society suggesting a substitute for the Manual of Arms as a means of physical exercise in the military training of school boys. There are also reports from local societies, editorial notes, book notices and an index of the proceedings and the reports of the Society issued during the past ten years. The American Society for the Advancement of Physical Education is accomplishing an important work, which will doubtless be increased by the publication of this review.

THE second annual report of Mr. F. A. Crandall, the Superintendent of Documents, is of considerable interest, more especially in view of the bill now before Congress. As everyone knows, a great number of important scientific papers and books are published each year by the government, but in such a manner as to lose a considerable part of their value. The documents are printed late and are often not bound and distributed for years after they have been printed. They are in large part given away where they are not wanted, while even their existence is unknown to many who would like to buy them. The present Superintendent has made great improvements in the publication of the Document Catalogue of the Fifty-Third Congress, and more especially in the issue of a monthly catalogue. The bill now before the Senate provides for uniform publication, so that there shall not be more than one original edition of each book. There are now often four editions of the same book bound in such a manner that no one could tell from the title on the cover that they are the same. The bill also provides for the more prompt binding and distribution of volumes. Other desirable provisions of the bill are that the publications of the several Departments and Commissions shall be bound in distinctive colors, so that their origin may be recognizable at sight; that the octavo size shall be used, except in unusual cases; that volumes shall be volumes and not parts; that series shall be series and not volumes; that gold leaf instead of base metal shall be used in lettering documents; that better cloth shall be used for binding than has sometimes heretofore been used; that sheep bindings for the library supply of public documents shall be abolished; that the back titles shall show the actual subject-matter of the books; that the bound volumes of Congressional documents and reports shall be paged consecutively through the volumes. The need of a reform is shown by the fact that during the year covered by the report nearly 200,000 documents were distributed, while only 3,581 were sold. Of many important publications, such as the *Memoirs of the National Academy of Sciences*, only one or two copies were sold. The *Monthly Catalogue* of public documents is for the present distributed without charge, and men of science should apply for this before the edition of 2,000 is exhausted.

UNIVERSITY AND EDUCATIONAL NEWS.

MR. SWANTE PALM, Swedish Vice-Consul at Austin, has given the University of Texas his library of 25,000 volumes.

WE have received a letter from Dr. I. Maddison, Secretary to the President of Bryn Mawr College, calling attention to the fact that in the article on 'Science in College Entrance Examinations,' printed in the issue of this JOURNAL for December 25, 1896, Bryn Mawr College was not included in a list of those institutions recognizing a proper preparation in physical and natural science. Colleges for women were not considered in the report in question, but we are glad to state that in this as in most other respects Bryn Mawr College has followed the admirable example of the Johns Hopkins University. As Dr. Maddison writes: "Bryn Mawr College has from its foundation included science in its entrance requirements. Some slight changes have been made in the regulations from time to time, but the latest program states that candidates for matriculation must be examined in the elements of one of the following sciences: Physics, chemistry, botany, physiology or physical geography. No student can obtain an A. B. degree at Bryn Mawr College without having attended lectures in science (biology, chemistry, physics or geology), for at least five hours weekly for one year, and doing, in connection with the science chosen, the prescribed amount of laboratory work."